

Service Hints

Plasma Television

<PDP 2011 Model>

TH-P50/42VT30Q

TH-P50/42UT30Q

TH-P50/42U30Q

TH-P50/42X30Q



TH-P50VT30Q

Troubleshooting Guide

- Ver 1.1-

This service hints is published for technicians and engineers for repair. And it gives you the information how to judge the defective board of PDP. In the future, we will improve the contents for more easy diagnostic and troubleshooting.

Please file and use this Service Hints together with the main service manual and other publications related to models.

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.





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1. 2011 PDP Line up & Feature Comparison

1. 2011 PDP Line up & Feature Comparison

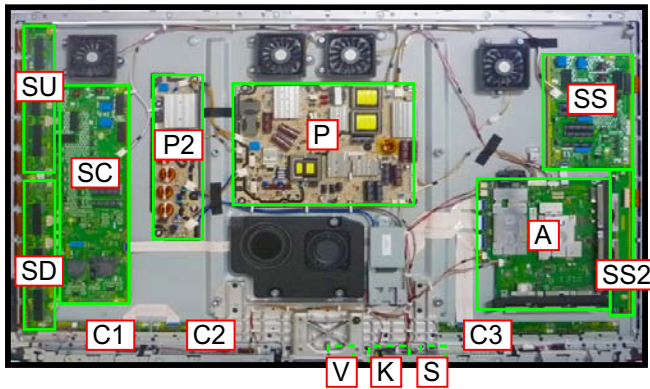
		VT30 Series	UT30 Series	U30 Series	X30 Series
					
Picture	Size	50/42	50/42	50/42	50/42
	Full HD 3D	Y	Y	—	—
	3D Active Shutter Eyewear	2 included	Not Included	—	—
	Contrast Ratio	5,000,000:1	2,000,000:1	2,000,000:1	2,000,000:1
	Shades of Gradation	6,144	6,144	6,144	4,096
	Moving Picture Resolution	1,080 lines	1,080 lines	900 lines	720 lines
	THX Mode	Y	—	—	—
	ISFccc	Y	—	—	—
	3D Colour Management	Y	—	—	—
Sound	Speakers	Full-range x 2, Woofer	Full-range x 2 (L, R)	Full-range x 2 (L, R)	Full-range x 2 (L, R)
Networking	HDMI Input	4 (4 side)	3 (1 side, 2 rear)	3 (1 side, 2 rear)	3 (1 side, 2 rear)
	Support Feature	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)	Audio Return Channel (Input 2)
	USB	3 (3 side)	3 (2 side, 1 rear)	2 (2 side)	2 (2 side)
	PC input	Y	Y	Y	Y
	VIERA Connect	Y	Y	—	—
	Wireless LAN Adaptor	WiFi Ready	WiFi Ready	WiFi Ready	WiFi Ready
	DLNA	Y	Y	Y	Y
Others	Swivel	Y	—	—	—
	One-Sheet-of-Glass Design	Y	—	—	—

2. PCB Location & Function

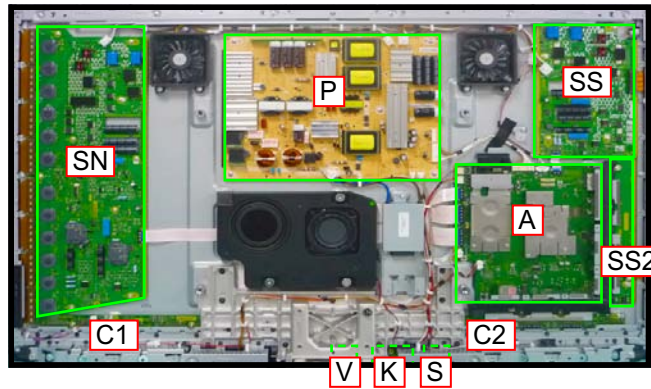
2. PCB Location & Function

VT30 Series

TH-P50VT30Q



TH-P42VT30Q



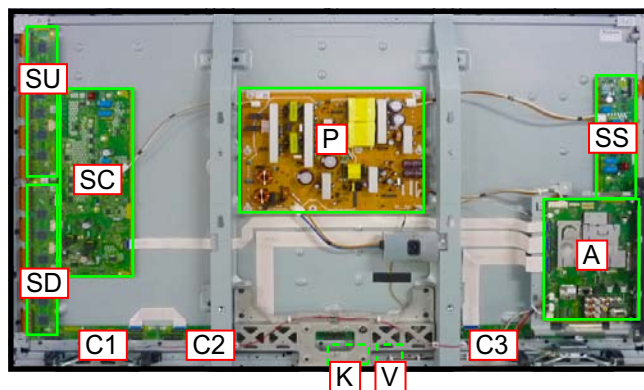
Board Name	Function	Parts Number
P	Power Supply	TXNP11QJUE
P2	Power Supply	TXNP21PNUB50
A	Main AV input, processing	TZTNP01NZUR
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
S	Power Switch	TXN/S1MZUJ46
V	3D Eyewear transmitter	TXN/V1MZUJ46
C1	Data Driver (Lower Right)	TXNC11NBUJ50
C2	Data Driver (Lower Center)	TXNC211GGK50
C3	Data Driver (Lower Left)	TXNC311GGK50
SC	Scan Drive	TXNSC11GGKB
SS	Sustain Drive	TXNSS11GGK50
SS2	Sustain out (Lower)	TXNSS211GGK
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU1MUUA50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD1NBUJ50
—	—	—

Board Name	Function	Parts Number
P	Power Supply	TXN/P1QKUE42
—	—	—
A	Main AV input, processing	TZTNP01PAUR
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
S	Power Switch	TXN/S1MZUJ46
V	3D Eyewear transmitter	TXN/V1MZUJ46
C1	Data Driver (Lower Right)	TXNC111DHK42
C2	Data Driver (Lower Left)	TXNC211DHK42
—	—	—
—	—	—
SS	Sustain Drive	TXNSS11DHK42
SS2	Sustain out (Lower)	TXNSS211DHK
—	—	—
—	—	—
SN	Scan Drive	TXNSN11DHKB

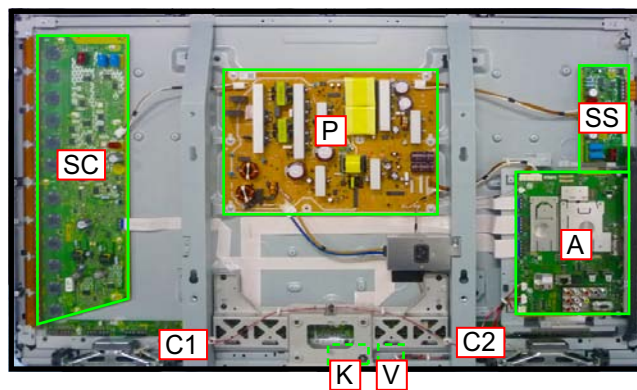
2. PCB Location & Function

UT30 Series

TH-P50UT30Q



TH-P42UT30Q



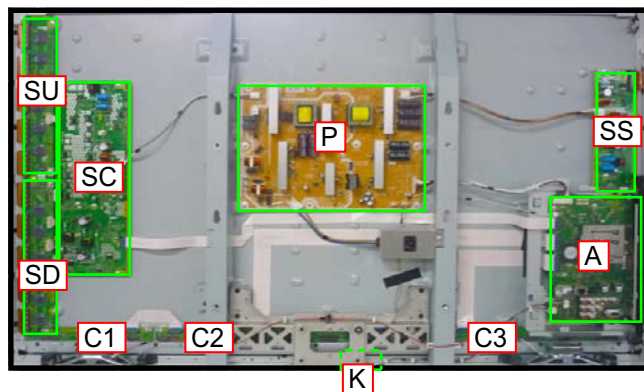
Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE6KK00009
A	Main AV input, processing	TZTNP01LCUQ
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
V	3D Eyewear transmitter	TXN/V1QYUJ46
C1	Data Driver (Lower Right)	TXNC11NBUJ50
C2	Data Driver (Lower Center)	TXNC21NBUJ50
C3	Data Driver (Lower Left)	TXNC31NBUJ50
SC	Scan Drive	TXNSC11JGK50
SS	Sustain Drive	TXNSS11JGK50
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11JGK50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11JGK50
—	—	—

Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE6KK00008
A	Main AV input, processing	TZTNP01LCUQ
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
V	3D Eyewear transmitter	TXN/V1QYUJ46
C1	Data Driver (Lower Right)	TXNC111DHK42
C2	Data Driver (Lower Left)	TXNC211FHK42
—	—	—
—	—	—
SS	Sustain Drive	TXNSS11FHK42
—	—	—
—	—	—
SN	Scan Drive	TXNSN11FHK42

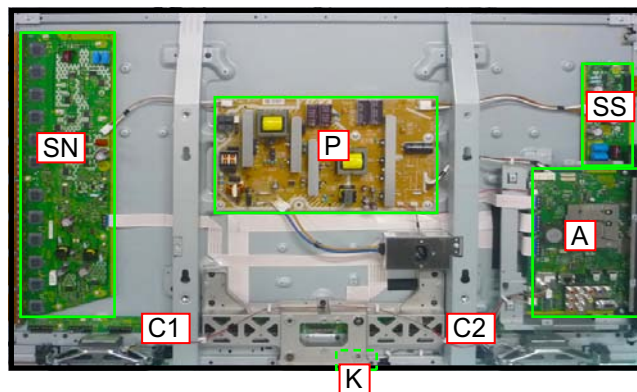
2. PCB Location & Function

U30 Series

TH-P50U30Q



TH-P42U30Q



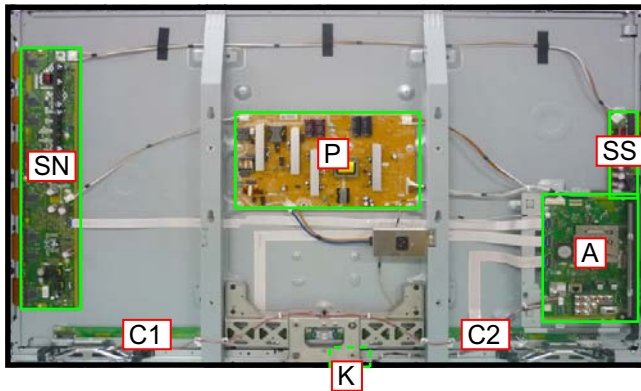
Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00009
A	Main AV input, processing	TZTNP01PBUR
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5318
C2	Data Driver (Lower Center)	TNPA5319
C3	Data Driver (Lower Left)	TNPA5320
SC	Scan Drive	TXNSC11JGK50
SS	Sustain Drive	TXNSS11JGK50
SU	Scan out (Upper) Non serviceable. SU-Board should be exchanged for service.	TXNSU11JGK50
SD	Scan out (Lower) Non serviceable. SD-Board should be exchanged for service.	TXNSD11JGK50
—	—	—

Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00008
A	Main AV input, processing	TZTNP01PCUR
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TNPA5314
C2	Data Driver (Lower Left)	TXNC211FHK42
—	—	—
—	—	—
SS	Sustain Drive	TXNSS11FHK42
—	—	—
—	—	—
SN	Scan Drive	TXNSN11FHK42

2. PCB Location & Function

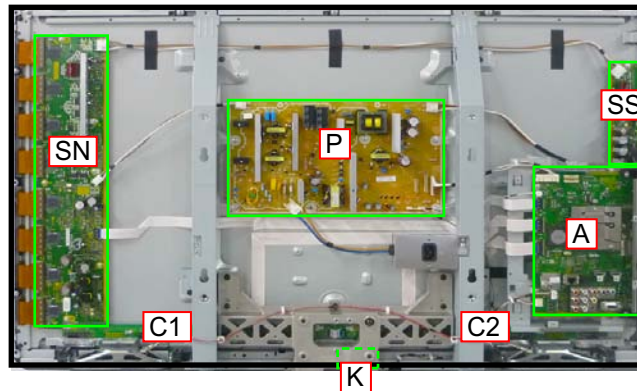
X30 Series

TH-P50X30Q



Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00007
A	Main AV input, processing	TZTNP01PDUR
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TXNC111MGK50
C2	Data Driver (Lower Left)	TXNC211MGK50
SS	Sustain Drive	TXNSS11MGK50
SN	Scan Drive	TXNSN11MGK50

TH-P42X30Q



Board Name	Function	Parts Number
P	Power Supply Non serviceable. P-Board should be exchanged for service.	N0AE5JK00006
A	Main AV input, processing	TZTNP01PEUR
K	Remote receiver, Power LED, C.A.T.S sensor	TXN/K1NNUA42
C1	Data Driver (Lower Right)	TXNC111HHK42
C2	Data Driver (Lower Left)	TXNC211HHK42
SS	Sustain Drive	TXNSS11HHK42
SN	Scan Drive	TXNSN11HHK42

3. PCB List

3. PCB List

	VT30 series		UT30 series		U30 series		X30 series	
Board	TH-P50VT30Q	TH-P42VT30Q	TH-P50UT30Q	TH-P42UT30Q	TH-P50U30Q	TH-P42U30Q	TH-P50X30Q	TH-P42X30Q
P	TXNP11QJUE	TXN/P1QKUE42	N0AE6KK00009	N0AE6KK00008	N0AE5JK00009	N0AE5JK00008	N0AE5JK00007	N0AE5JK00006
P2	TXNP21PNUB50	----	----	----	----	----	----	----
A	TZTNP01NZUR	TZTNP01PAUR	TZTNP01LCUQ	TZTNP01LCUQ	TZTNP01PBUR	TZTNP01PCUR	TZTNP01PDUR	TZTNP01PEUR
K	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42	TXN/K1NNUA42
S	TXN/S1MZUJ46	TXN/S1MZUJ46	----	----	----	----	----	----
V	TXN/V1MZUJ46	TXN/V1MZUJ46	TXN/V1QYUJ46	TXN/V1QYUJ46	----	----	----	----
C1	TXNC11NBUJ50	TXNC111DHK42	TXNC11NBUJ50	TXNC111DHK42	TNPA5318	TNPA5314	TXNC111MGK50	TXNC111HHK42
C2	TXNC211GGK50	TXNC211DHK42	TXNC21NBUJ50	TXNC211FHK42	TNPA5319	TXNC211FHK42	TXNC211MGK50	TXNC211HHK42
C3	TXNC311GGK50	----	TXNC31NBUJ50	----	TNPA5320	----	----	----
SC	TXNSC11GGKB	----	TXNSC11JGK50	----	TXNSC11JGK50	----	----	----
SS	TXNSS11GGK50	TXNSS11DHK42	TXNSS11JGK50	TXNSS11FHK42	TXNSS11JGK50	TXNSS11FHK42	TXNSS11MGK50	TXNSS11HHK42
SS2	TXNSS211GGK	TXNSS211DHK	----	----	----	----	----	----
SU	TXNSU1MUUA50	----	TXNSU11JGK50	----	TXNSU11JGK50	----	----	----
SD	TXNSD1NBUJ50	----	TXNSD11JGK50	----	TXNSD11JGK50	----	----	----
SN	----	TXNSN11DHKB	----	TXNSN11FHK42	----	TXNSN11FHK42	TXNSN11MGK50	TXNSN11HHK42

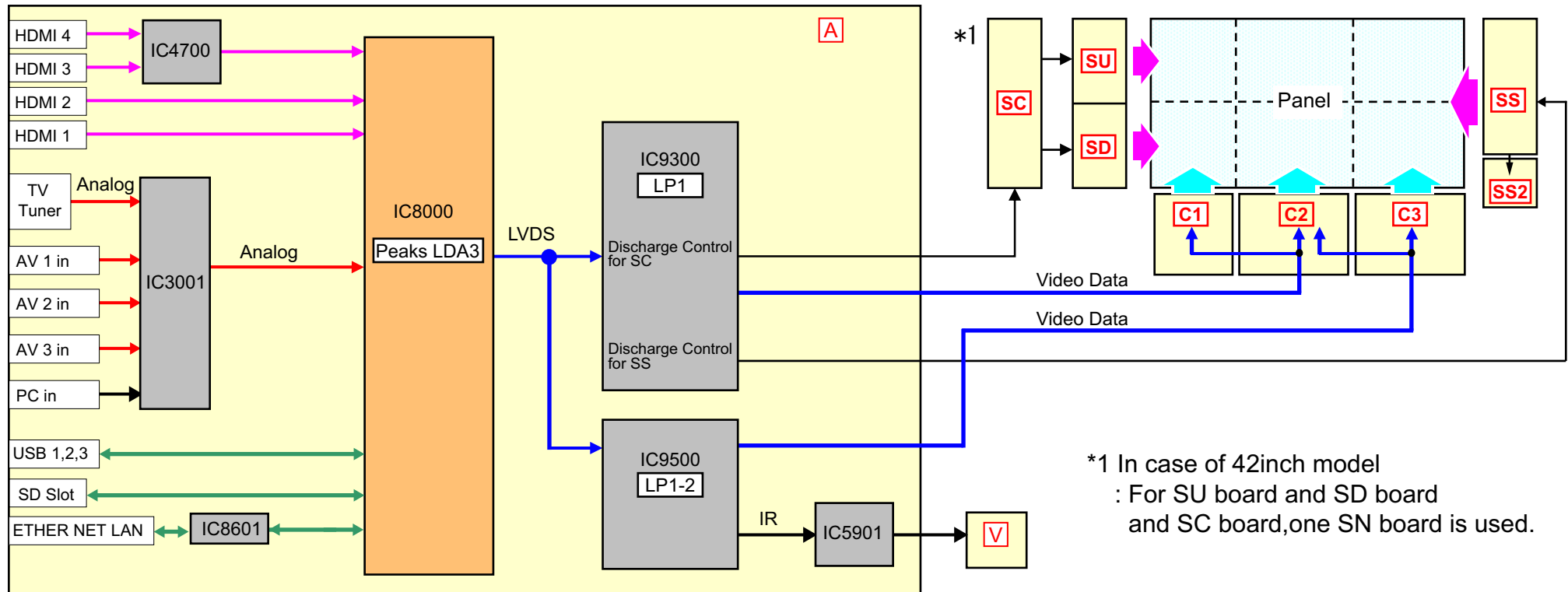
4. Block Diagram

4. Block Diagram

Signal Processing Circuit (1) VT30 series

<PCB Function>

[e.g. TH-P50VT30Q]



*1 In case of 42inch model
: For SU board and SD board
and SC board, one SN board is used.

IC3001
: Video Switch
(Audio Switch)

IC8601
: ETHER NET I/F

IC4700
: HDMI SW
IC8000
: Peaks LDA3
(Digital Video Processor)

IC5901
: IR LED DRIVER

IC9300
: LP1
[Sub Field Processor,
Discharge Control
Plasma AI]

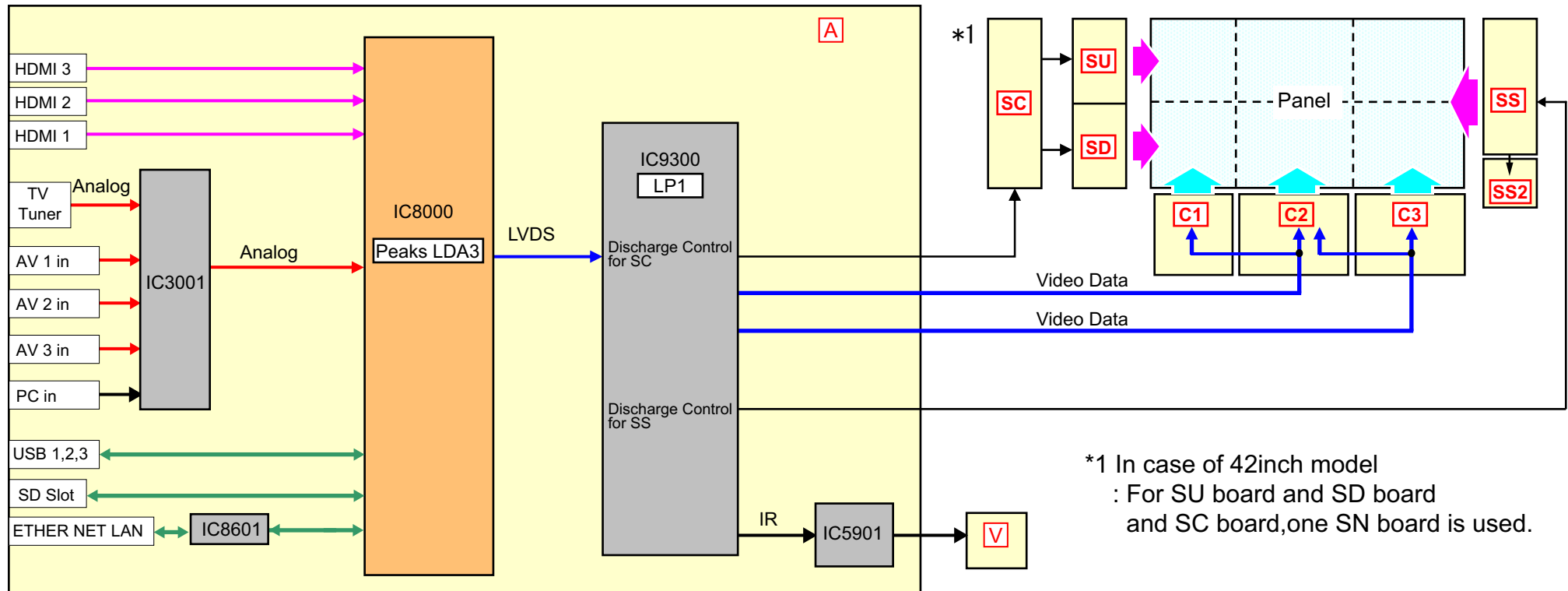
IC9500
: LP1-2
Sub Field Processor,
Plasma AI

Signal Processing Circuit (2) UT30 series

Signal Processing Circuit (2) UT30 series

<PCB Function>

[e.g. TH-P50UT30Q]

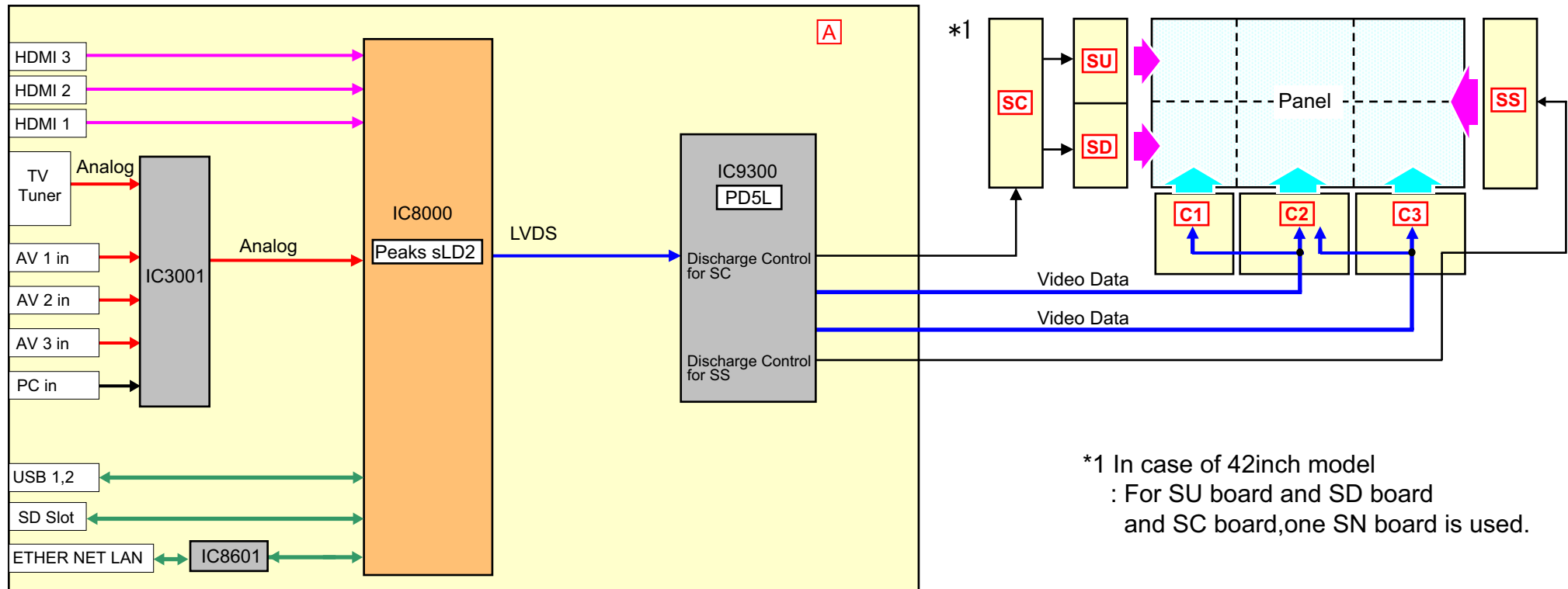


4.Block Diagram

Signal Processing Circuit (3) U30 series

<PCB Function>

[e.g.TH-P50U30Q]



*1 In case of 42inch model
: For SU board and SD board
and SC board,one SN board is used.

IC3001
: Video Switch
(Audio Switch)
IC8601
: ETHER NET I/F

IC8000
: Peaks sLD2
(Digital Video Processor)

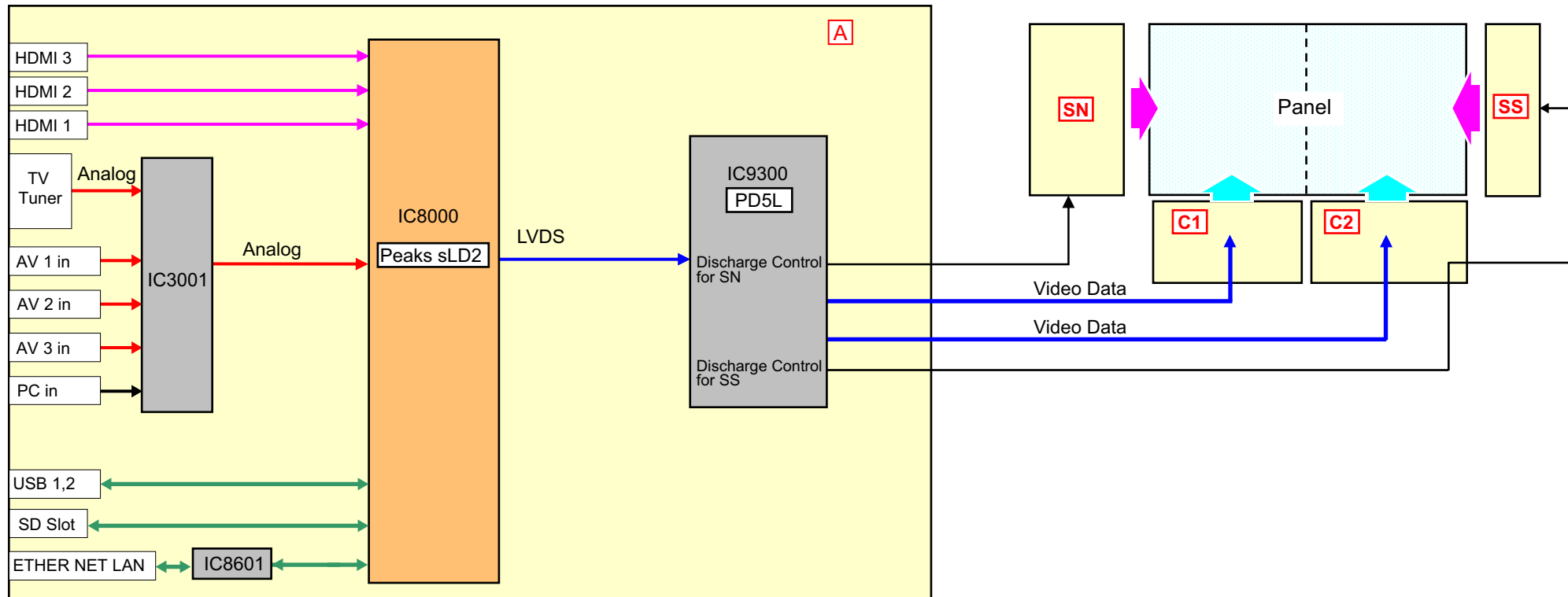
IC9300
: PD5L
[Sub Field Processor,
Discharge Control
Plasma AI]

4. Block Diagram

Signal Processing Circuit (4) X30 series

<PCB Function>

[e.g. TH-P50X30Q]



IC3001
: Video Switch
(Audio Switch)

IC8601
: ETHER NET I/F

IC8000
: Peaks sLD2
(Digital Video Processor)

IC9300
: PD5L
[Sub Field Processor,
Discharge Control
Plasma AI]

5. Troubleshooting

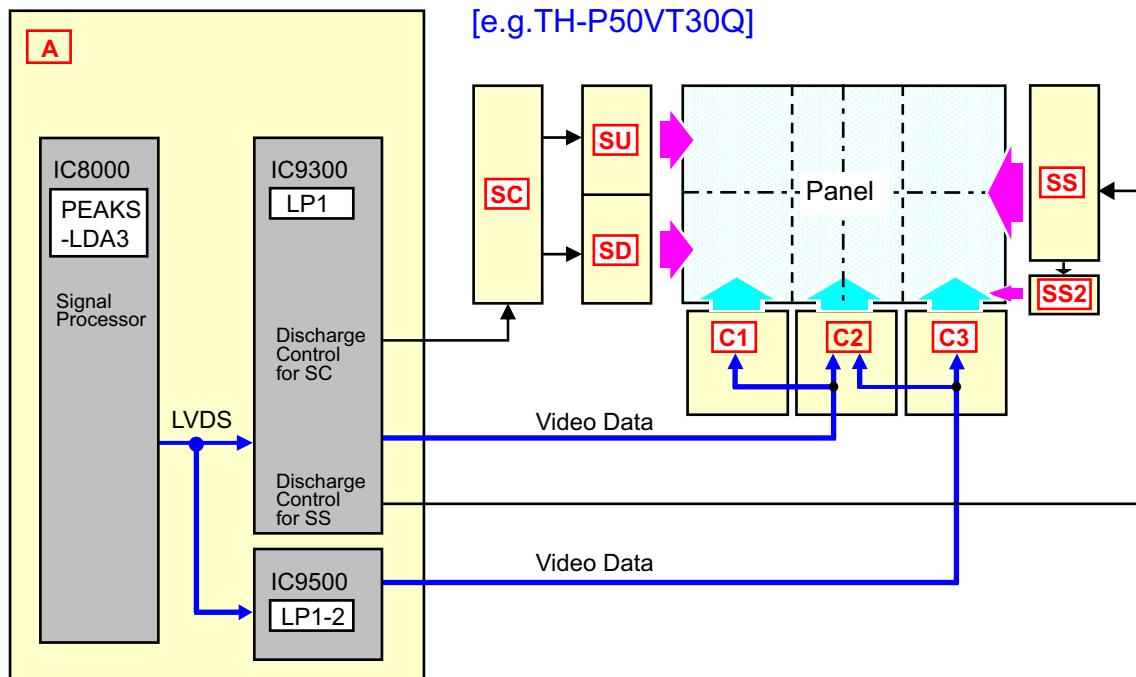
5.Troubleshooting for picture trouble

Relation of board and display area (1/3)

You know the possible defective board by picture trouble area.

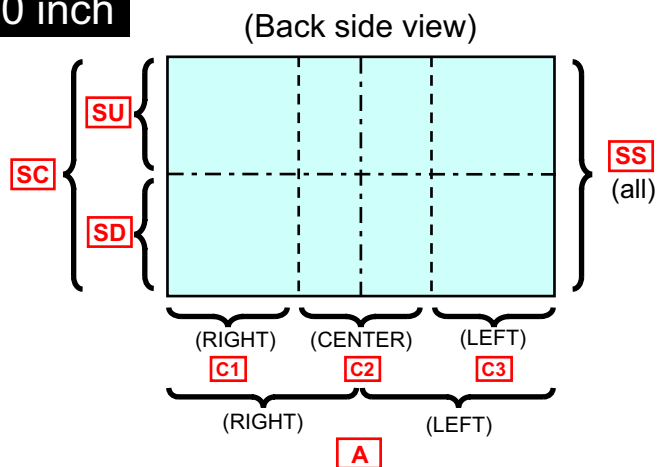
[In case of VT30/UT30 series]
(3D models)

<Display device block diagram>

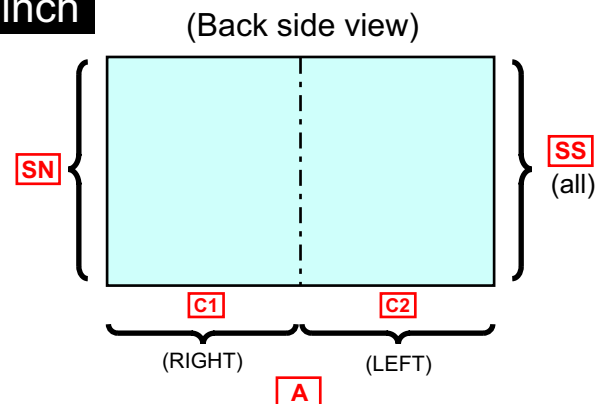


<Relation of defective board and picture trouble area >

50 inch



42 inch



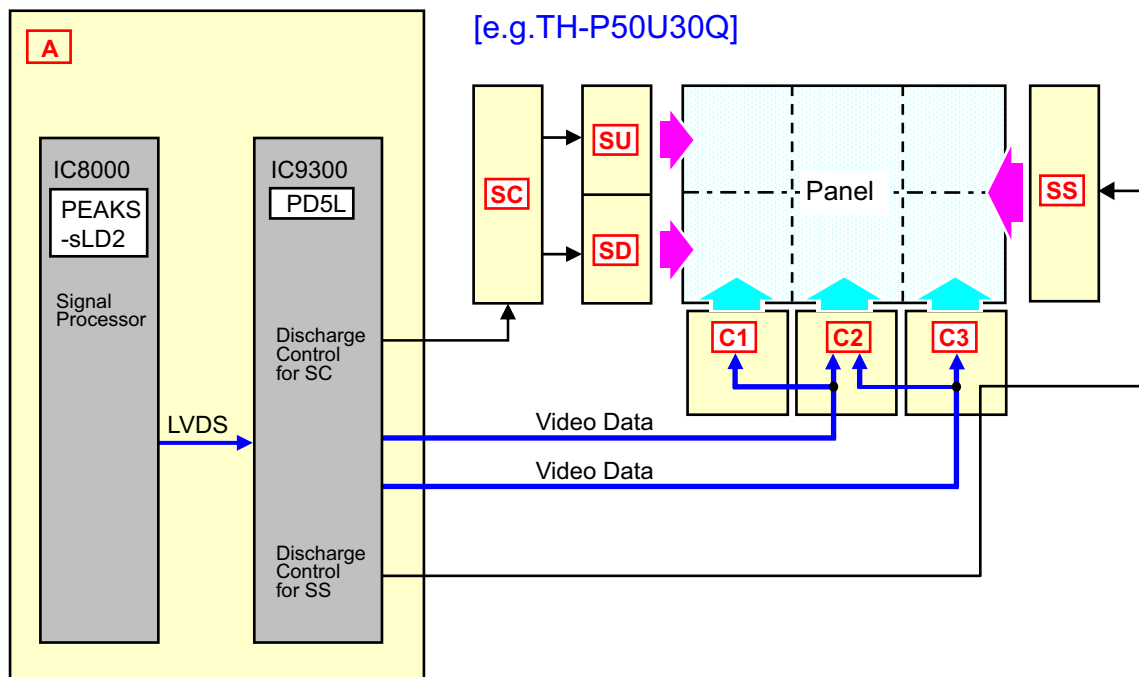
5.Troubleshooting for picture trouble

Relation of board and display area (2/3)

You know the possible defective board by picture trouble area.

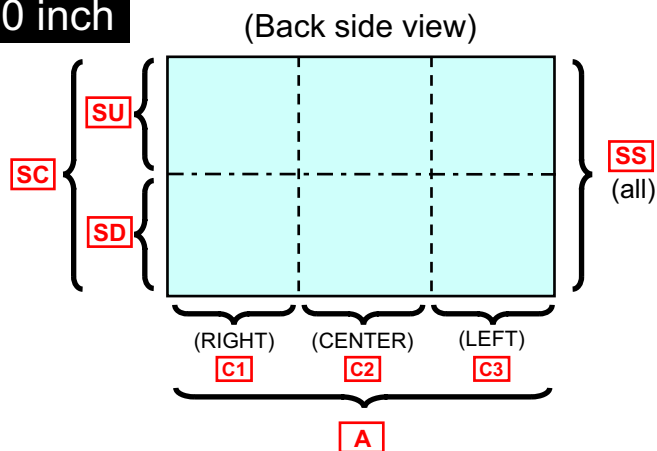
[In case of U30 series]
(2D Full HD models)

<Display device block diagram>

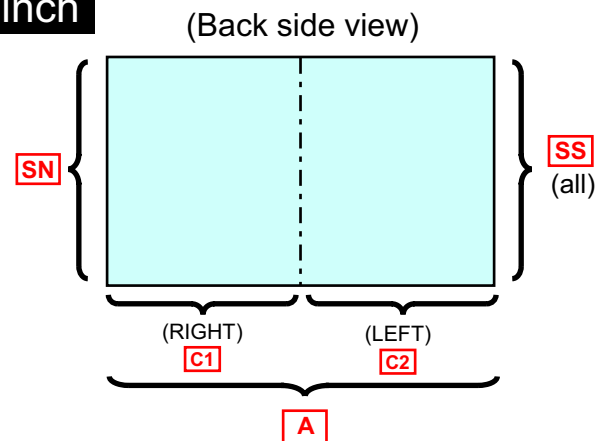


<Relation of defective board and picture trouble area >

50 inch



42 inch



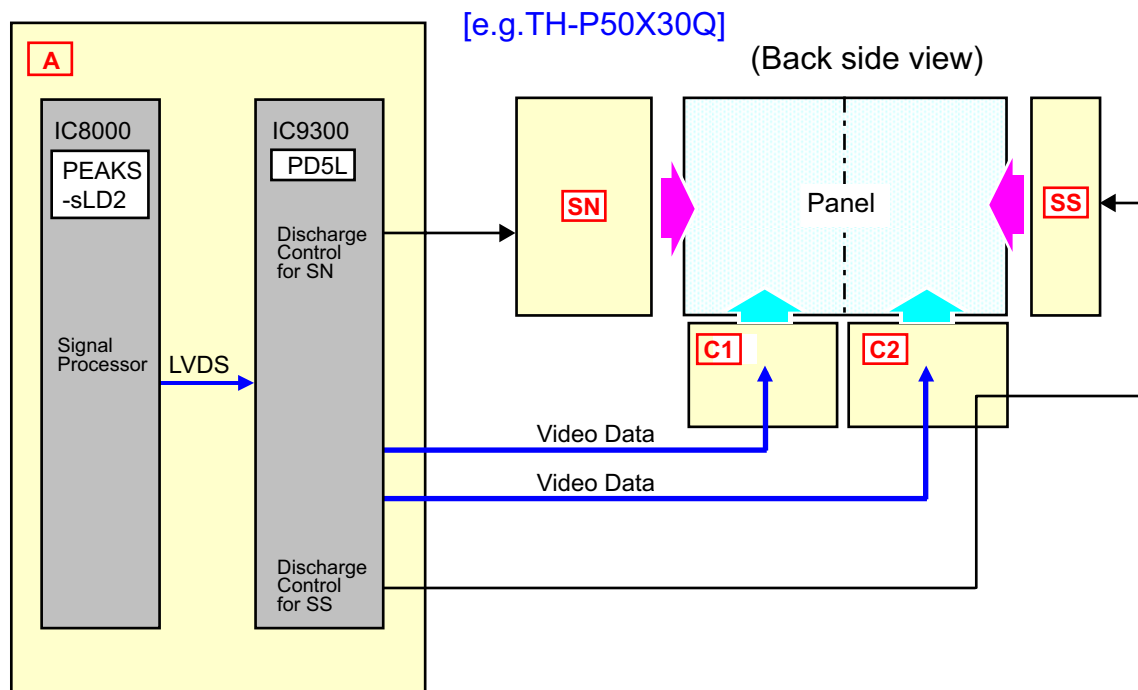
5.Troubleshooting for picture trouble

Relation of board and display area (3/3)

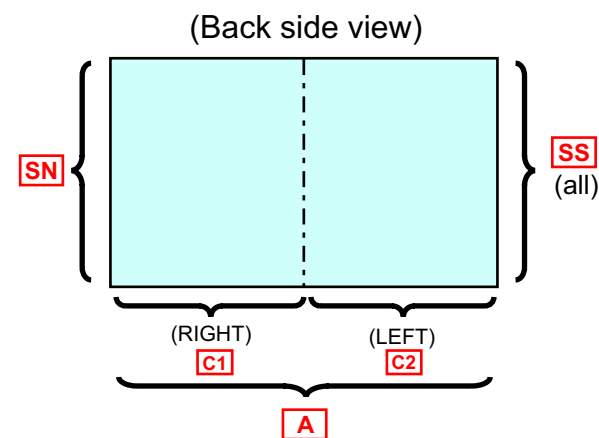
You know the possible defective board by picture trouble area.

[In case of X30 series]
(HD models)

<Display device block diagram>



<Relation of defective board and picture trouble area >



5. Troubleshooting for picture trouble

Picture trouble [diagnosis of vertical line]

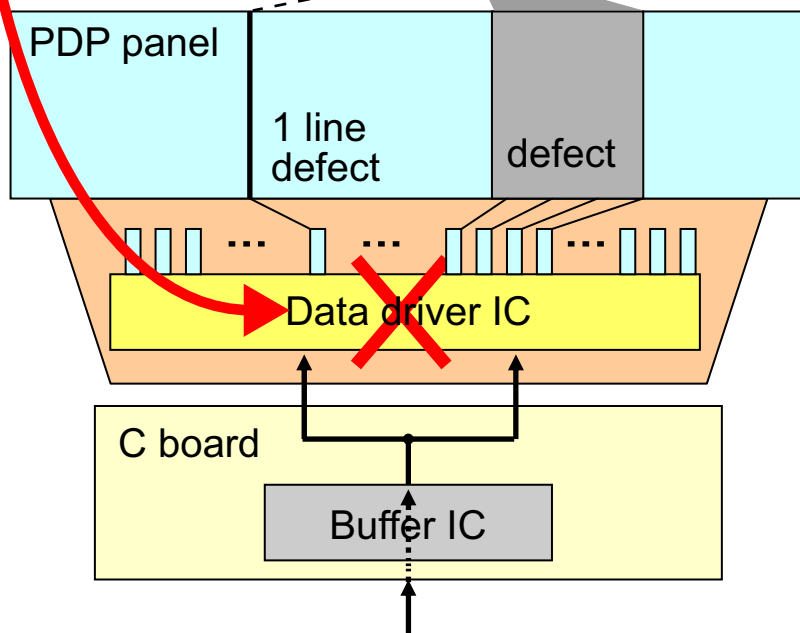
[In case of VT30 / UT30 / U30 / X30 series]

PDP panel defective (Data driver IC defective)

Width is narrower than FPC

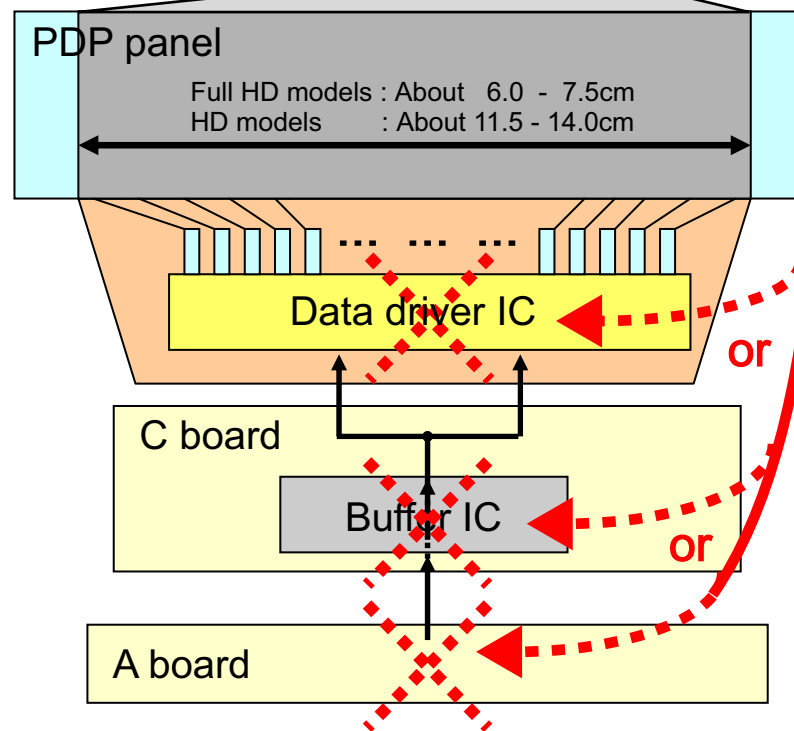


Data driver IC defect = PDP panel defect



Data driver IC or C or A board defective

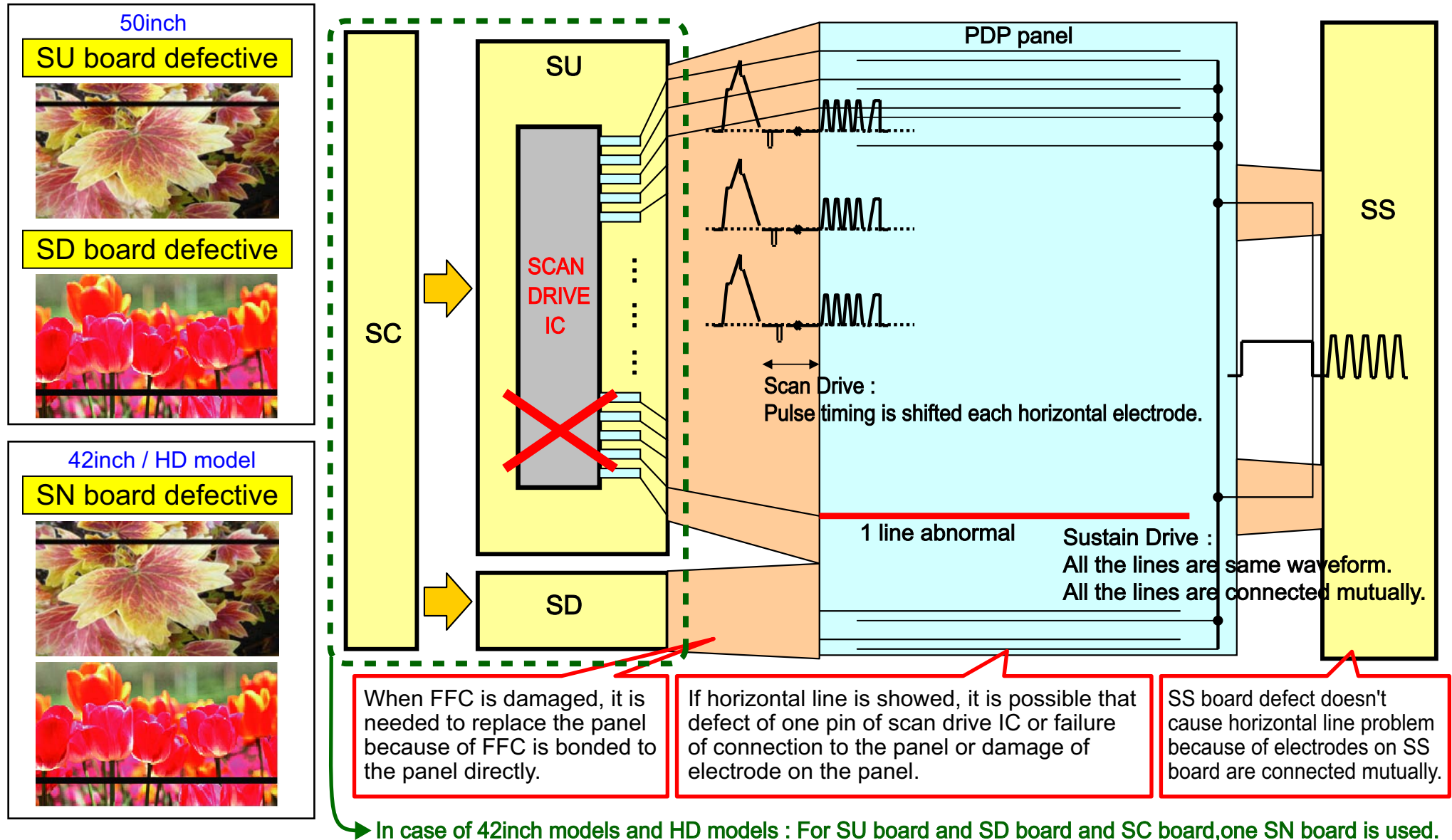
Width is same as FPC



5.Troubleshooting for picture trouble

Picture trouble [diagnosis of horizontal line]

[In case of VT30 / UT30 / U30 / X30 series]



5.Troubleshooting for picture trouble

Picture trouble [Function of diagnosis]

< Mirror function >

Mirror Function : Picture can be reversed left and right or up and down.

For vertical lines problems, this feature can help to determine if the problem is the A board or the panel.

If the position of the line/lines changes when performing this function, the A board is possibly defective.

The rear cover does not have to be removed to do this.

To enter the Mirror Function.

From the Service Mode Menu, Press 1 or 2 to select "OPTION".

Press 3 or 4 to select "MIRROR".

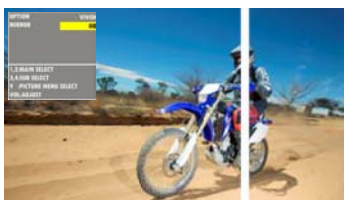
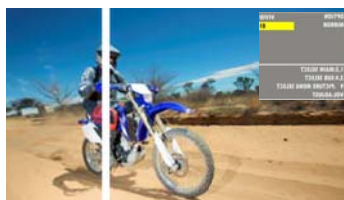
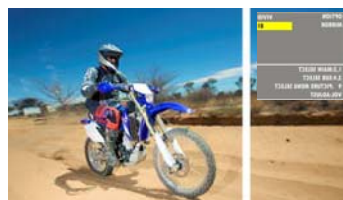

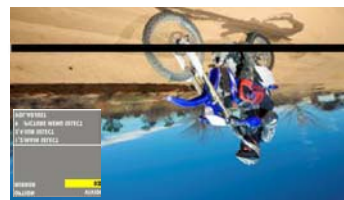

Press the VOLUME up or down button to change the Mirror's data.

Data = 00 Default data (Mirror function is off).

Data = 01 Picture is reversed left and right.

Data = 02 Picture is reversed up and down.

<How to diagnose by using "Mirror function">

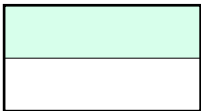
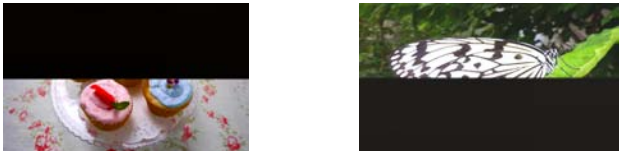

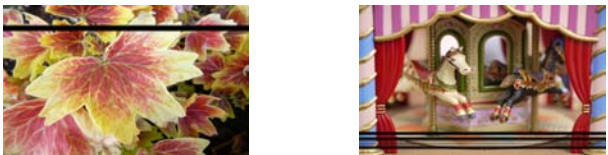
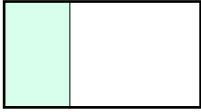

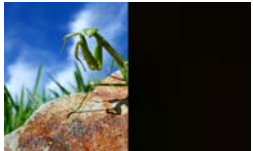

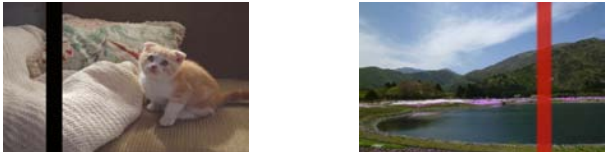

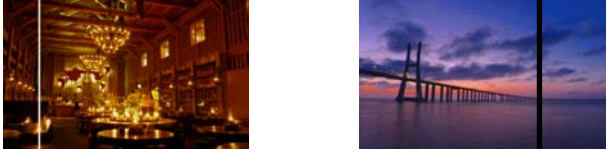

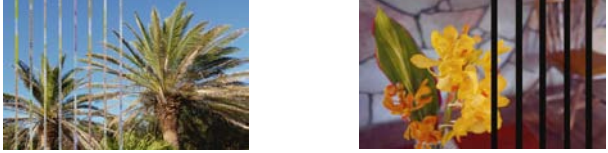
	Data : 00	Data : 01	
		the picture & line : reverse	only the picture : reverse
Vertical Line			
		Defective Block : A board	Defective Block : Panel or C board
	Data : 00	Data : 02	
		the picture & line : reverse	only the picture : reverse
Horizontal Line			
		Defective Block : A board	Defective Block : Panel or SD board *

* In case of 42inch models and HD models : For SU board and SD board and SC board,one SN board is used.

5.Troubleshooting for picture trouble

Summary of picture trouble

< Some part of screen : VT30 / UT30 / U30 / X30 series >

Symptom	Actual symptom	Defective board
Trouble at Upper or Lower half 		50inch : SU / SD 42inch and HD model : SN
Horizontal line (Upper or Lower side) 		50inch : SU / SD 42inch and HD model : SN or panel
Trouble at Left or Center or Right part (42inch and HD model : Left or Right half) 	50inch  42 inch and HD model 	50inch : C1-C3 42inch and HD model : C1,C2
Vertical line (Width is same as FPC) 		C or A or PDP panel
Vertical line (Width is narrower than FPC) 		PDP panel
Regular bar 		A

5.Troubleshooting for picture trouble

Diagnosis by Test Pattern

<Model>

VT30, UT30, U30, X30 series

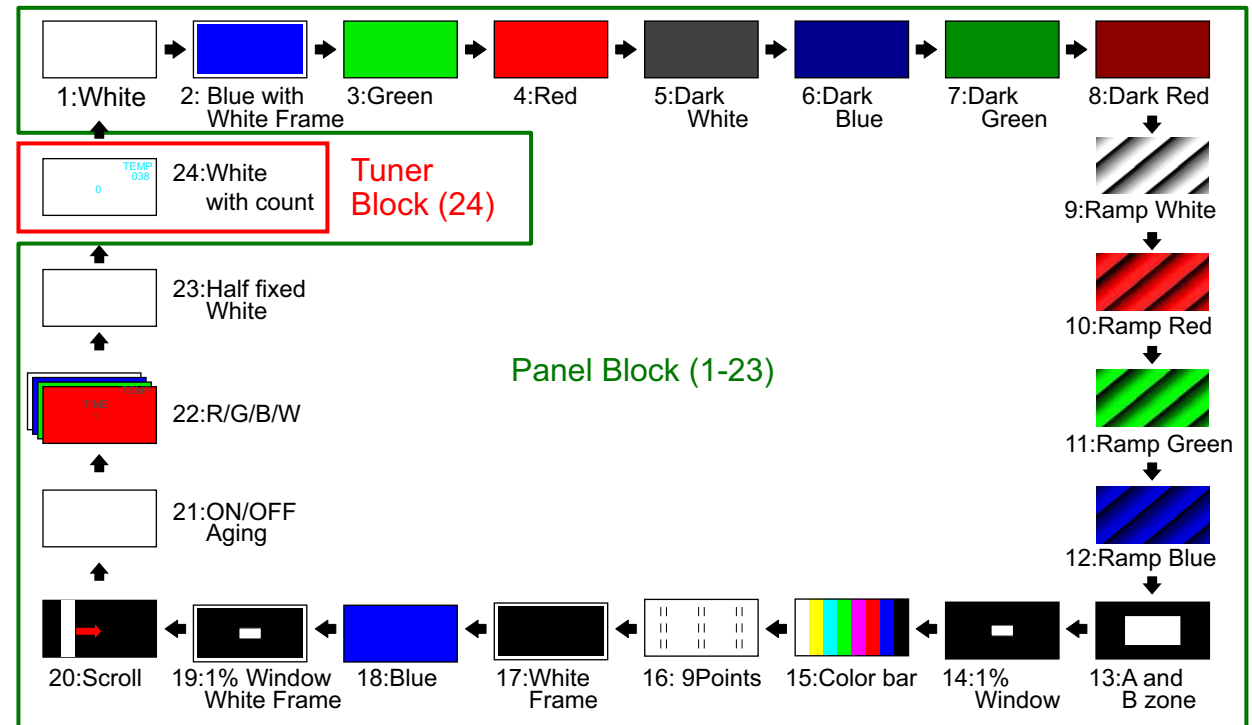
<Symptom>

Picture Noise, Full Vertical Line, Abnormal color

<How to enter the Test Pattern>

1. Press the "**VOLUME -**" on the TV set and push "**i**" button of remote controller 3 times at the same time.
2. After this procedure, you can enter "Service Mode" and select "**AGING**", then "Test pattern" will appear.
3. Push "3" button of Remote Controller to select the test pattern mode to forward.
4. Push "4" button of Remote Controller to select the test pattern mode to reverse.

<Test Pattern (Normal)>



<Diagnosis>

How to diagnose by using test pattern




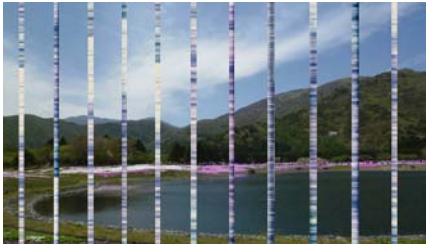



Abnormal picture
(Picture Noise, Full Vertical Line, Abnormal color)

Test pattern (1-23)	Defective Block (Board)
Abnormal	Panel Block (A Board or Panel)
Normal	Tuner Block (A Board)

No picture

Test pattern	Defective Block (Board)
No picture	Panel Block (A Board or Panel)
O.K	Tuner Block (A Board)

< All area of screen >

Symptom	Actual symptom	Defective board
Irregular Color	 	<div>A board</div>
All vertical line	 	<div>A board</div>
Abnormal electric discharge	  	<div>in case of 50inch SC / SS board</div> <div>in case of 42inch and HD model SN / SS board</div>

6. No Power Troubleshooting (When LED doesn't Blink)

[Model]

TH-P50/42VT30Q

	Power LED error code	Contents	Check points
1	Power LED is Off (No picture/No sound)	P-board abnormal P15V:voltage down F15V:voltage down	P-board SN/SC-board SS-board A-board
2	Power LED is green blinks [High-speed blinking] (No picture/No sound)	P15V:voltage down	P-board SN/SC-board SS-board A-board
3	Power LED is green (No picture/No sound)	P15V:voltage down	SN/SC-board A-board

Troubleshooting Flowcharts
: refer to 29 page - 31 page

[Model]

TH-P50/42UT30Q

	Power LED error code	Contents	Check points
1	Power LED is green (No picture/No sound)	Vsus:voltage down P15V:voltage down	P-board SN/SC-board SS-board A-board

Troubleshooting Flowcharts
: refer to 32 page

[Model]

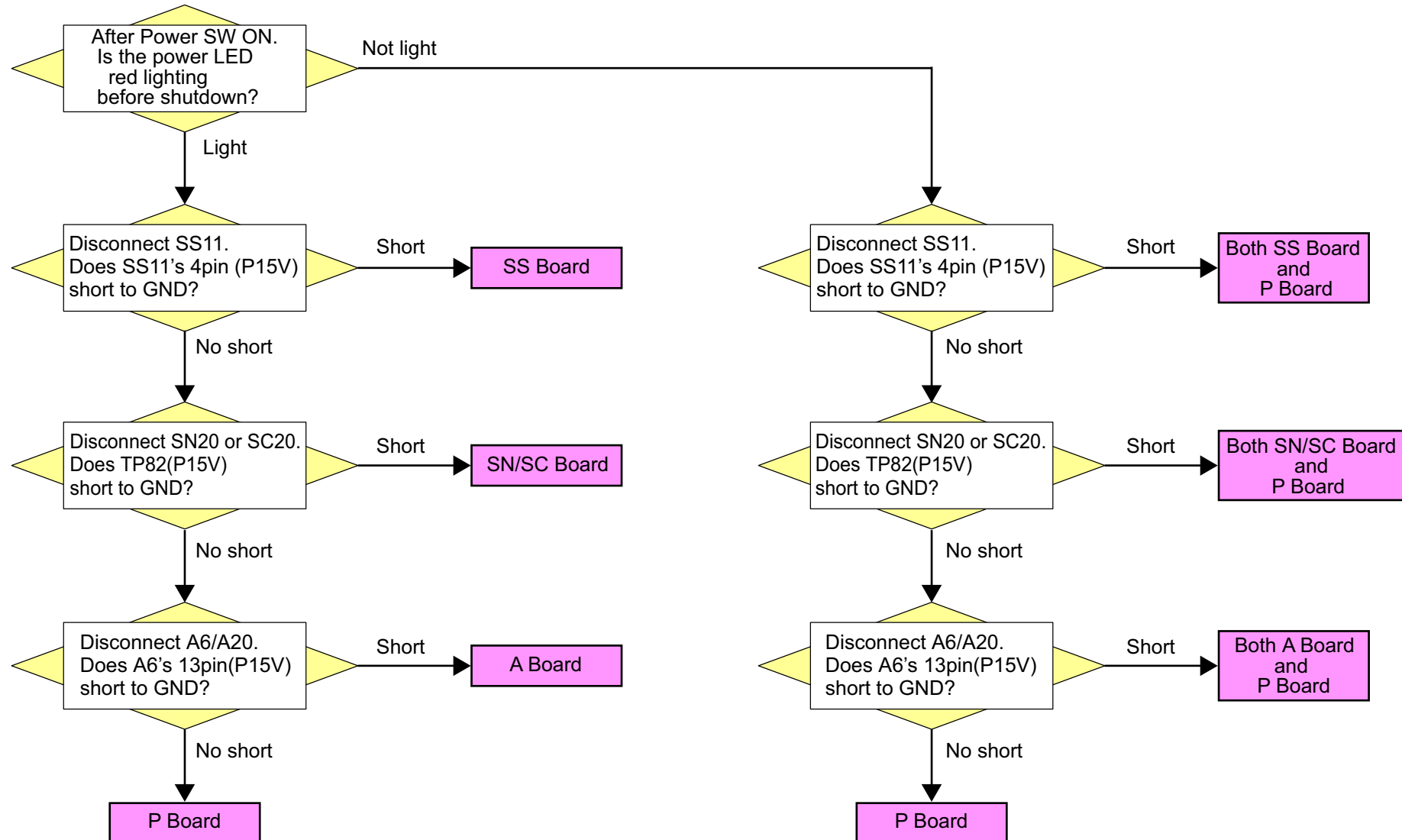
TH-P50/42U30Q, TH-P50/42X30Q

	Power LED error code	Contents	Check points
1	Power LED is Off (No picture/No sound)	P-board abnormal Vsus:voltage down P15V:voltage down F15V:voltage down	P-board SN/SC-board SS-board A-board
2	Power LED is green (No picture/No sound)	P15V:voltage down	P-board SN/SC-board SS-board A-board

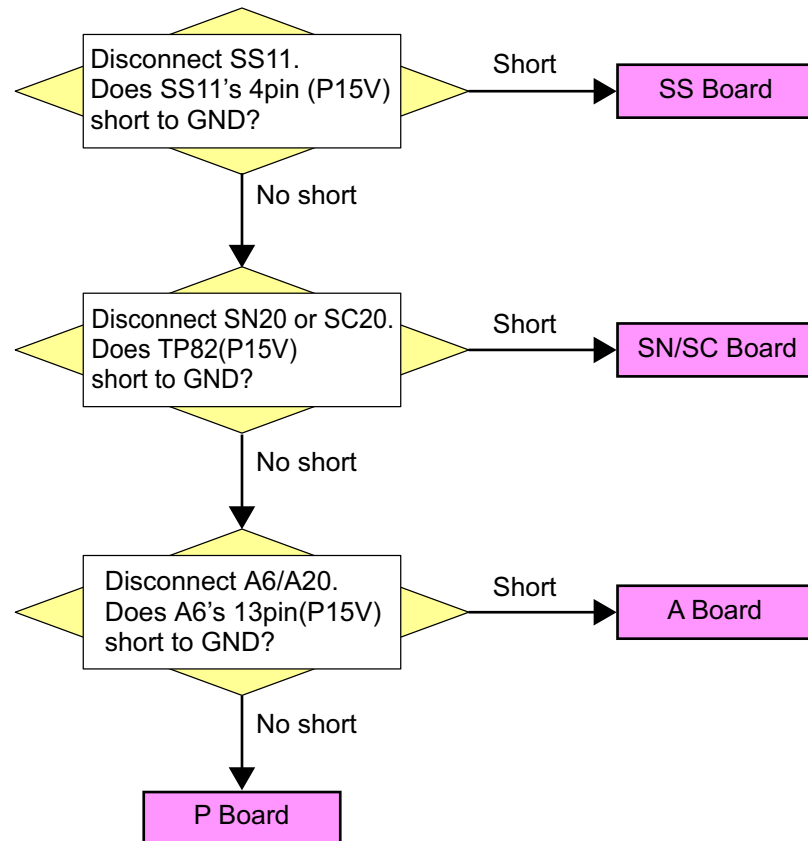
Troubleshooting Flowcharts
: refer to 33 page - 34 page

[Model] TH-P50/42VT30Q

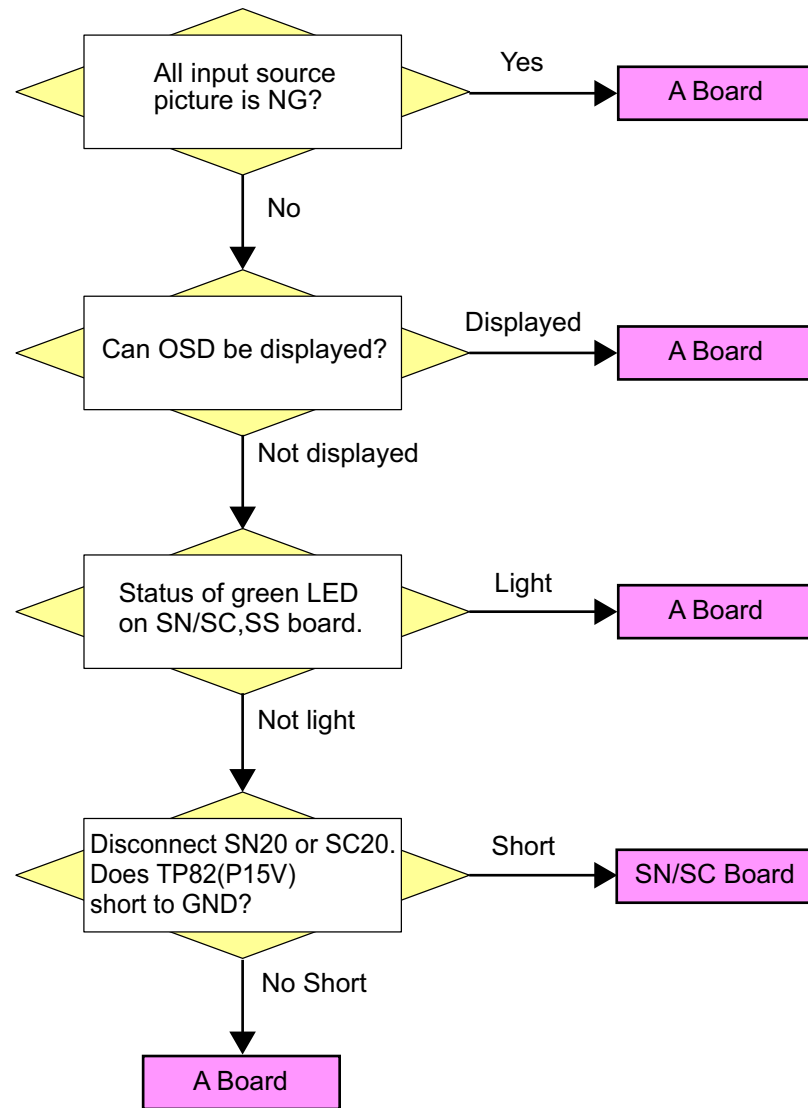
< 1. Power LED is Off : No Picture, No Sound >



< 2. Power LED is green blinking [High-speed blinks] : No Picture, No Sound >

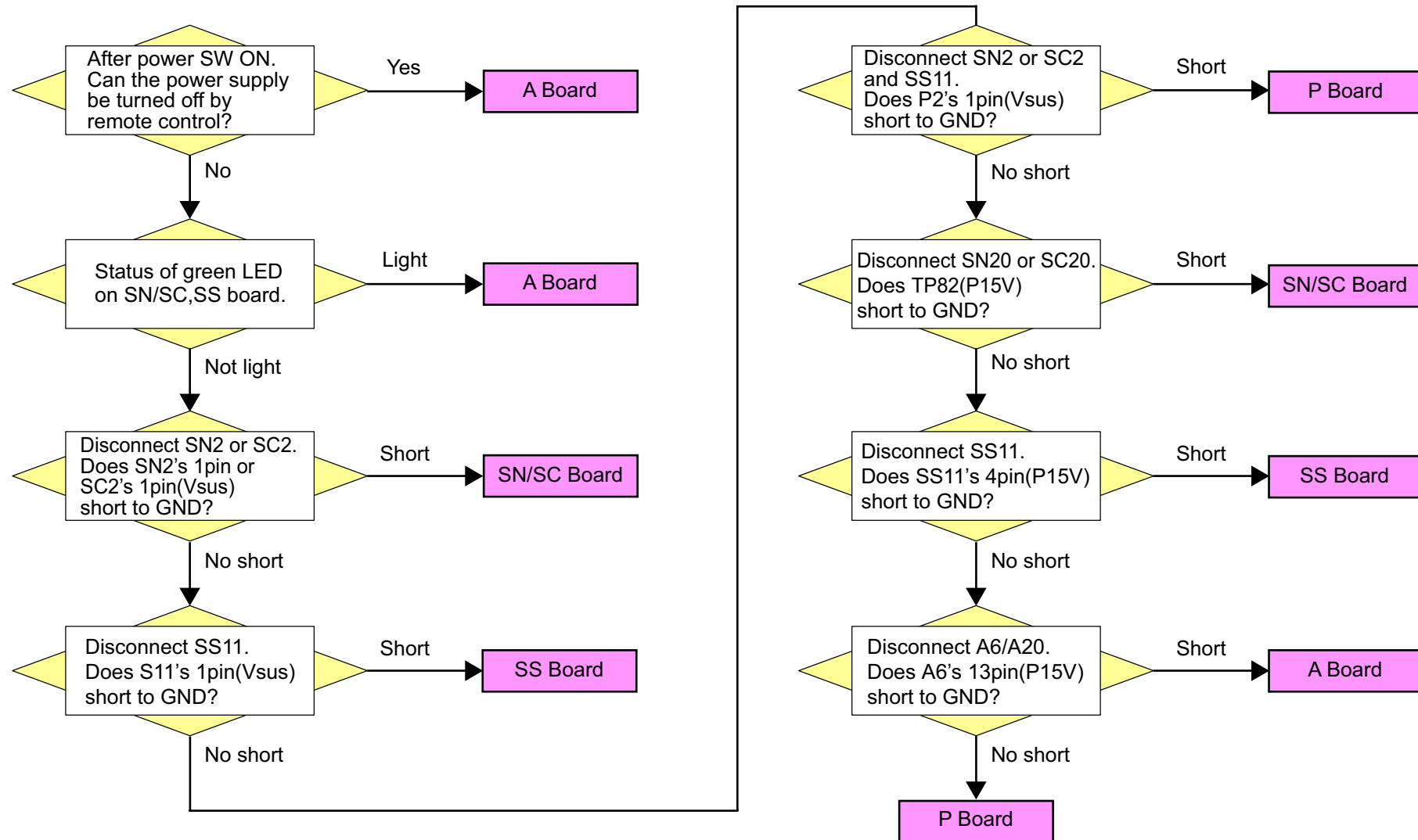


< 3. Power LED is green : No Picture, No Sound >



[Model] TH-P50/42UT30Q

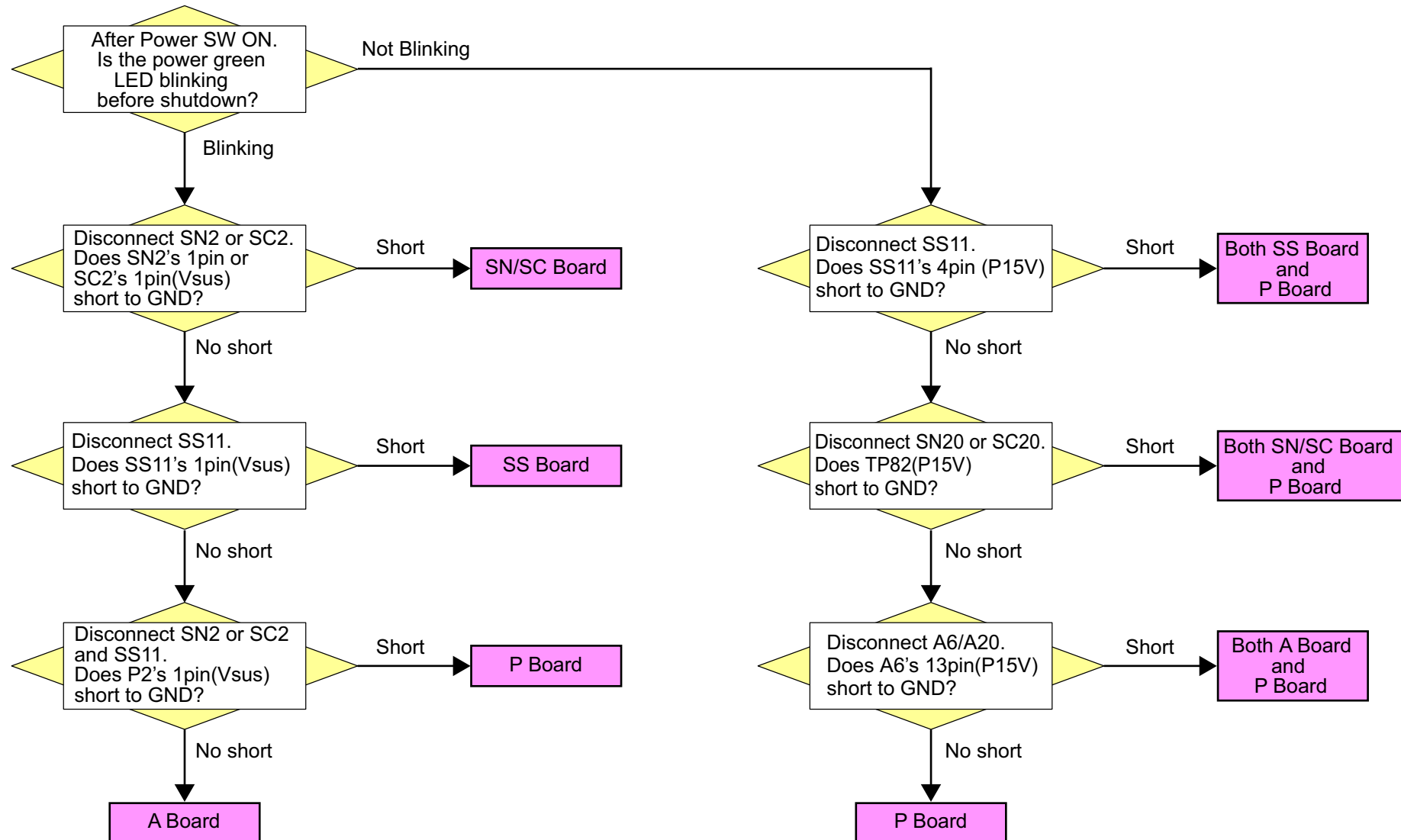
< 1. Power LED is green : No Picture, No Sound >



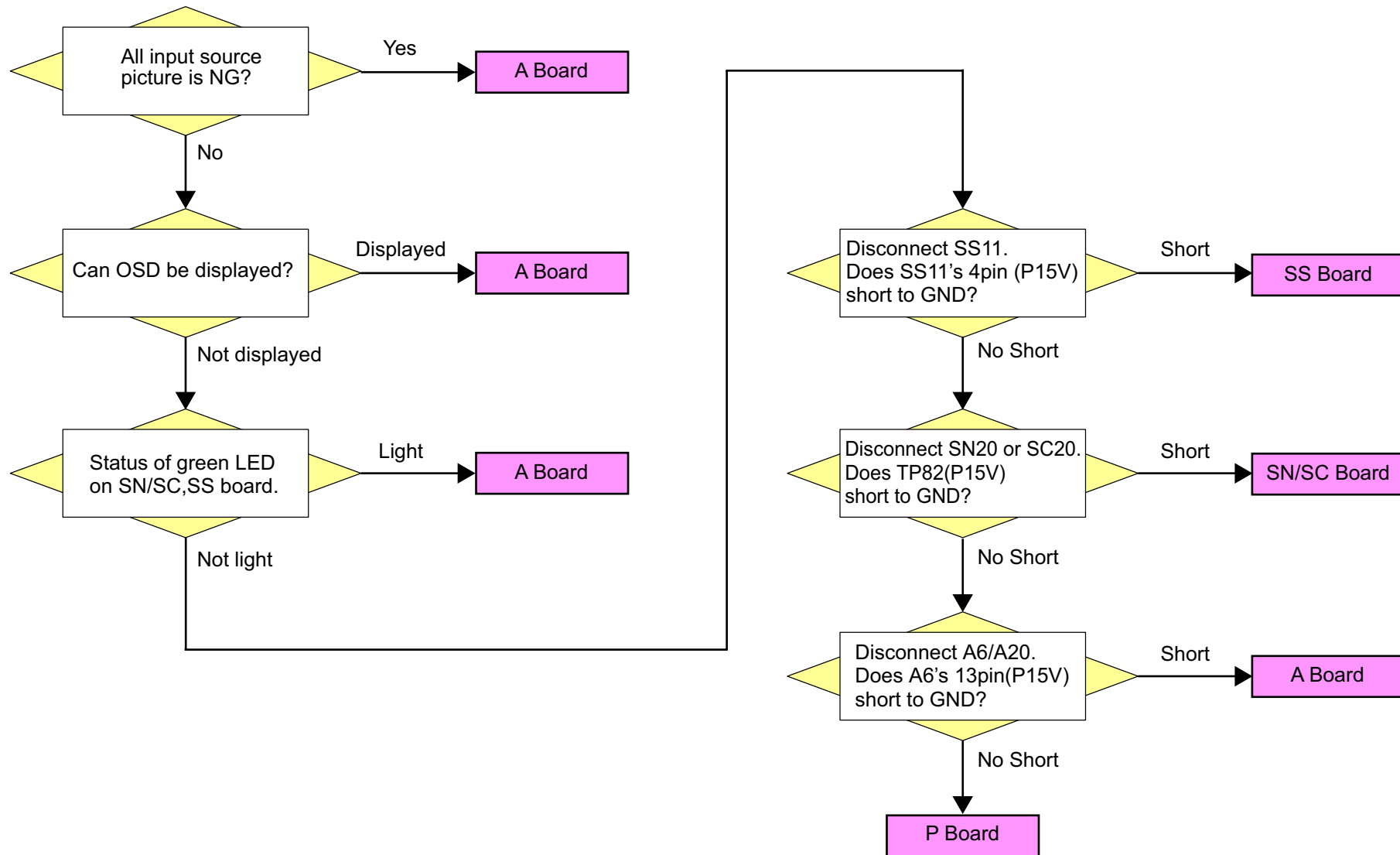
[Model]

TH-P50/42U30Q, TH-P50/42X30Q

< 1. Power LED is Off : No Picture, No Sound >



< 2. Power LED is green : No Picture, No Sound >



7. Case Example of Picture Trouble

7.Case Example of Picture Trouble

[1] Model : 2011 model

[2] Symptom : Rainbow vertical bar

[3] Defective parts :

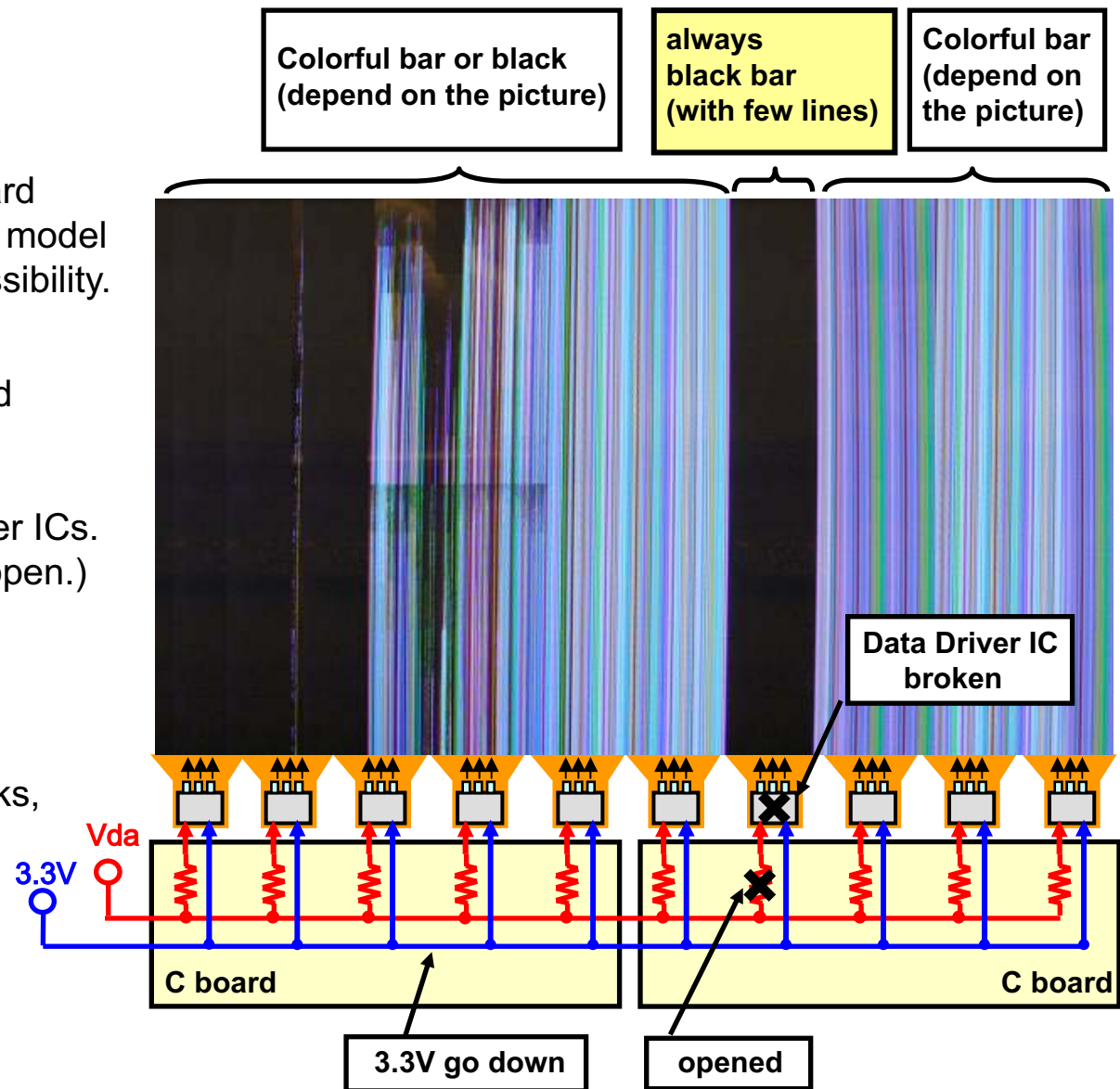
This symptom is very likely to be the A board defect for the previous model, but for 2011 model the Panel and C board defect is a high possibility.

[4] Summary :

If one of the Data Driver IC is defective and 3.3V go down, the other Data Driver ICs don't work correctly.
Because 3.3V is common for all Data Driver ICs.
(Vda line is isolated due to resistor being open.)

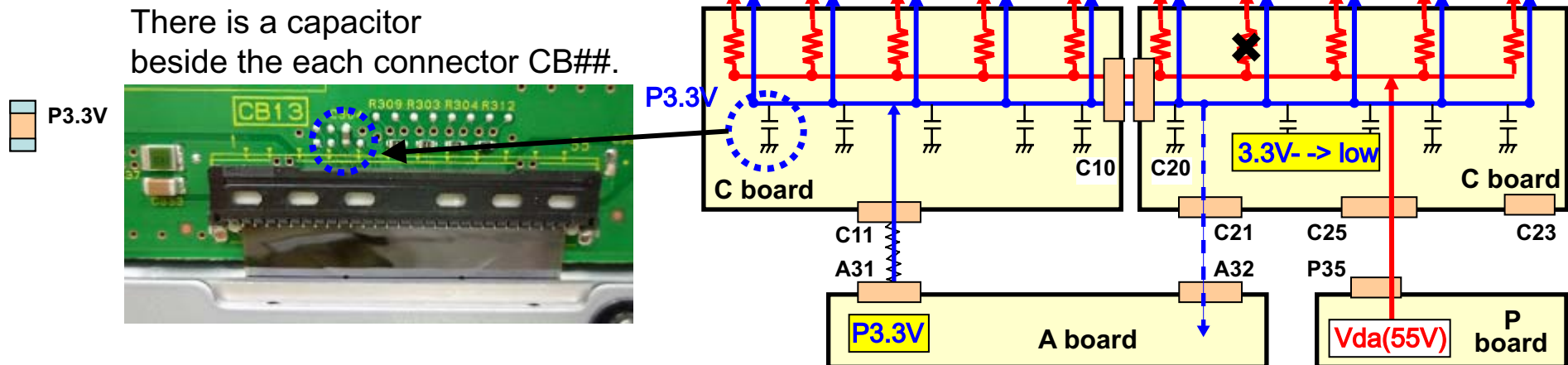
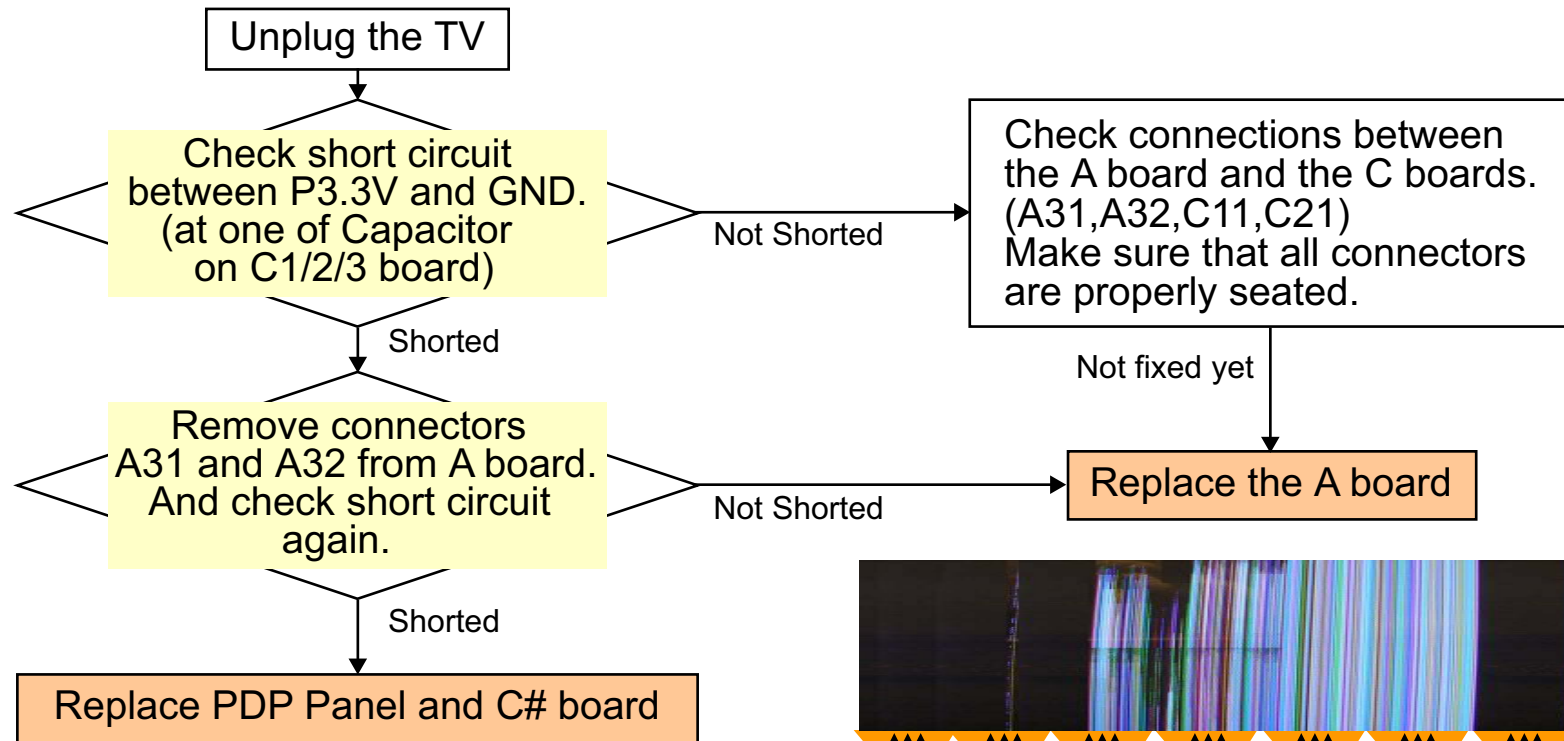
[5] Check point (Trouble shoot) :

Check by displaying some images.
If the position (length) of colorful bars change and there are some black bar blocks, the data driver IC is defective.
If there is no black bar block, check the connection of cables between A and C board.
If trouble still persists, the A board could be defective.



7.Case Example of Picture Trouble

[6] Detail Troubleshoot : Short check of the P3.3V line



7.Case Example of Picture Trouble

[7] Symptom example (another image)

Normal Image



Defective unit



Change history

[illegible]